



State of Utah

DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER QUALITY

M/035/015

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288 North 1460 West
P.O. Box 144870
Salt Lake City, Utah 84114-4870
(801) 538-6146 Voice
(801) 538-6016 Fax
(801) 536-4414 T.D.D.

August 13, 1997

Ms. Elaine J. Dorward-King, Ph.D.
Director, Environmental Affairs
Kennecott Utah Copper
8315 West 3645 South
Magna UT 84044-6001

Dear Ms. Dorward-King:

Subject: Review of KUC Report on Acid Base Accounting ; Appendix A Sampling Results;
Kennecott Tailings Impoundment; Ground Water Discharge Permit No.
UGW350011

Review of the report tabulating the acid base accounting sampling and analysis for 1996 has been completed. There are a few items that will need to be updated in order to make the report satisfactory. These are as follows:

1. It is cumbersome to match up the individual certificates of analysis with a sampling location. Table A-1 provides some help although not all sample locations are defined. A better explanation of individual sampling sites is needed. A tabulation of the data by sample location would be very helpful. A table format that is acceptable to the Division is attached. This will make the report much more easily utilized. Suggested data groups would be:

-Copperton Tailings	-Magna Tailings	-Slag Tailings
-Power Plant Ash	-Hydromet Plant	
-Underflow to N. Expansion	-Overflow to N. Expansion	
-Existing Impoundment Upper	-Existing Impoundment Middle	
-Existing Impoundment Lower		

2. The majority of individual certificates of analysis all have a date of May 14, 1997. Each certificate of analysis should show the actual date of analysis.

3. Section 3.0 of Appendix A of the permit notes that a table will be provided in the annual report that shows the effect of using the correction factor noted in SOP #1. This table needs to be provided.

4. A description of the calculation of confidence intervals presented for the 95% confidence interval about the population mean is needed in the report to be able to validate these calculations. This could be presented as an appendix to the report.



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5. Several outlier data points were eliminated from the data set. Results for data points that were determined to be outliers should be provided along with an explanation why the data results are not acceptable. Please provide a copy of the statistical test that was used to determine outliers (Grubbs Test, EPA, 1989).

6. The QA/QC standard for replicate samples is an RPD of less than plus or minus 35%. Eleven of the 39 results shown on Table 5 of appendix C of the report exceed this standard. These analyses should be re-run in order to meet the QA/QC standard.

7. Section 4.3.1 of the report appears to be out of sync with the text. Is there missing information here that we did not receive?

8. No data was received for the Hydromet Plant effluent. Could you please provide an explanation for our records.

As soon as available, would you please forward the results of kinetic testing of 1996 samples that was ongoing at the time this report was being prepared. I would like to review these results before kinetic testing of 1997 samples is initiated.

Would you please provide either updated pages for our copy of the report or a revised report that addresses each of the items noted in the preceding comments. This should be provided within 90 days of the date of this letter. Thank you for your cooperation in this matter. Please feel free to contact me if you should have any questions on this letter.

Sincerely,



John Whitehead, Ground Water Hydrologist
Ground Water Protection Section

JW:jw

Attachment

cc: Terry Sadler, Salt Lake County Health
Gene Farmer, Farmer and Associates
Wayne Hedberg, DOGM

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FILE: Kennecott Tailings Impoundment

DRAFT

ABA Sampling Results from from Copperton Concentrator

Sample I.D.	Sample Date	Analysis Date	A.P	N.P.	ABA Result	% Total Sulfur	% Pyritic Sulfur
group statistics							
Mean							
Std. Dev.							
Confidence Interval							

ABA Sampling Results from Underflow to North Impoundment

Sample I.D.	Sample Date	Analysis Date	A.P	N.P.	ABA Result	% Total Sulfur	% Pyritic Sulfur
group statistics							
Mean							
Std. Dev.							
Confidence Interval							